

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

MICHIHISA MAEDA, ET AL.

Application No.:

Filed:

For: **Flip Chip Interconnection Using No-Clean
Flux**

Art Group:

Examiner:

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.97

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure, enclosed is a copy of Information Disclosure Statement by Applicant (form PTO/SB/08), which is being submitted concurrently with the Continuation Application. It is respectfully requested that the cited references be considered and that the enclosed copy of PTO/SB/08 be initialed by the Examiner to indicate such consideration and a copy thereof returned to applicant(s). Some or all of the references listed on the enclosed PTO/SB/08 were previously identified in the parent application (Application No. 09/820,547, filed March 28, 2001) and copies of the references were furnished at that time. Accordingly, per 37 CFR §1.98(d)(1) additional copies of those references are not submitted herewith.


The submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made in the subject application and is not to be construed as an admission that the information cited in this statement is material to patentability.

Please charge any fees due to Deposit Account 02-2666. A duplicate copy of the Fee Transmittal (PTO/SB/17) is enclosed for this purpose.

Date: 1/21/04

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP


Aslam A. Jaffery, Reg. No. 31,841

12400 Wilshire Boulevard, 7th Floor
Los Angeles, CA 90025
Telephone: (303) 740-1980

| | | | | | | | |
|---|--|-------------|--|------------------------|---|-----------------------|--------------------|
| US Department of Commerce Patent and Trademark Office Form PTO-1449 (Modified) | | | Atty. Docket No.: 42390P9978C | | Application No.: Not Yet Assigned | | |
| | | | Applicant: Maeda et al. | | | | |
| | | | Filing Date: Concurrently Herewith | | | | |
| US Patent Documents | | | | | | | |
| Examiner's Initials | | Date | Document Number | Name | Class | Sub- Class | Filing Date |
| | | 05/28/91 | 5,019,673 | Juskey et al. | | | 08/22/90 |
| | | 05/05/92 | 5,111,279 | Pasch et al. | | | 08/30/90 |
| | | 09/22/92 | 5,150,274 | Okada et al. | | | 07/09/91 |
| | | 04/05/94 | 5,299,730 | Pasch et al. | | | 11/24/92 |
| | | 05/02/95 | 5,410,805 | Pasch et al. | | | 02/10/94 |
| | | 08/01/95 | 5,438,477 | Pasch | | | 08/12/93 |
| | | 04/16/96 | 5,508,561 | Tago et al. | | | 11/14/94 |
| | | 01/20/98 | 5,710,071 | Beddingfield et al. | | | 12/04/95 |
| | | 04/28/98 | 5,744,869 | Root | | | 12/05/95 |
| | | 07/14/98 | 5,778,913 | Degani et al. | | | 02/20/97 |
| | | 07/28/98 | 5,784,780 | Loo | | | 01/03/97 |
| | | 10/06/98 | 5,816,478 | Kaskoun et al. | | | 06/05/95 |
| | | 08/24/99 | 5,942,798 | Chiu | | | 11/24/97 |
| | | 01/04/00 | 6,011,312 | Nakazawa et a. | | | 07/29/97 |
| | | 04/18/00 | 6,051,889 | Shimura | | | 06/26/98 |
| | | 06/11/00 | 6,087,732 | Chittipeddi t al. | | | 09/28/98 |
| | | 08/29/00 | 6,111,317 | Okada et al. | | | 01/16/97 |
| | | 09/19/00 | 6,121,689 | Capote et al. | | | 07/21/98 |
| | | 08/15/00 | 6,103,549 | Master et al. | | | 03/17/98 |
| | | 12/19/00 | 6,163,463 | Marrs | | | 05/13/98 |
| Foreign Patent Documents | | | | | | | |
| Examiner's Initials | | Date | Document Number | Country | Class | Sub- Class | Translation |
| | | 06/23/88 | JP63151033 | Japan | | | |
| | | | | | | | |
| Other Documents (Including Author, Title, Date, Pertinent Pages, etc.) | | | | | | | |
| | | | | | | | |
| Examiner | | | | Date Considered | | | |

Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw a line through the citation if not in conformance and not considered. Include a copy of this form with the next communication to the applicant

| | | | | | | | |
|---|--|--|------------------------|---|--------------|------------------|--------------------|
| US Department of Commerce Patent and Trademark Office Form PTO-1449 (Modified) | | Atty. Docket No.: 42390P9978C | | Application No.: Not Yet Assigned | | | |
| | | Applicant: Madea et al. | | | | | |
| | | Filing Date: Concurrently Herewith | | | | | |
| US Patent Documents | | | | | | | |
| Examiner's Initials | | Date | Document Number | Name | Class | Sub-Class | Filing Date |
| | | 01/06/98 | 5,704,116 | Gamota et al. | | | |
| | | 04/17/01 | 6,217,671 | Henderson et al. | | | |
| | | 05/02/00 | 6,057,168 | Seyama et al. | | | |
| | | 01/11/00 | 6,013,572 | Hur et al. | | | |
| | | 06/04/02 | 6,400,034 | Kimura et al. | | | |
| Foreign Patent Documents | | | | | | | |
| Examiner's Initials | | Date | Document Number | Country | Class | Sub-Class | Translation |
| | | 09/01/88 | 63-004652 | Japan | | | Y |
| | | 08/29/88 | 63-208251 | Japan | | | Y |
| Other Documents (Including Author, Title, Date, Pertinent Pages, etc.) | | | | | | | |
| | | Pooya Tadayon, Sort Test Technology Development, Intel Corporation. "Thermal Challenges Diring Microprocessor Testing". Intel Technology Journal Q3, 2000. Pgs. 1-8. | | | | | |
| | | Dory, Takahashi, Kume, Kubota, Seki and Fujiyama, "Simultaneous Chip-Join and Underfill Assembly Technology for Flip-Chip Packaging". Intel Technology Journal Q3, 2000. Pgs. 1-7 | | | | | |
| | | Polka, Chickamenahalli, Chung, Figueroa, Li, Merley, Wood and Zu, "Package-Level Interconnect Design for Optimum Electrical Performance". Intel Technology Journal Q3, 2000. Pgs.1-17. | | | | | |
| | | Viswanath, Wakharar, Watwe and Lebonheur, "Thermal Performance Challenges from Silicon to Systems". Intel Technology Journal Q3, 2000. Pgs. 1-16. | | | | | |
| | | Nicholas P. Mencinger, Assembly Technology Development and Reliability, Intel Corp. "A Mechanism-Based Methodology for Processor Package Reliability Assessments". Intel Technology Journal Q3, 2000. Pgs.1-8. | | | | | |
| | | John H. Lau, "Flip Chip Technologies", 1995 (Electronic Packaging and Interconnection Series) (P-5-K2D36). McGraw-Hill Companies Inc. © 1996. Pages 1-565. | | | | | |
| Examiner | | | | Date Considered | | | |

Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw a line through the citation if not in conformance and not considered. Include a copy of this form with the next communication to the applicant

| | | | | | | | |
|---|--|---|----------------------------|--|--------------|---|--------------------|
| US Department of Commerce Patent and Trademark Office Form PTO-1449 (Modified) | | | | Atty. Docket No.: 42390P9978C | | Application No.: Not Yet Assigned | |
| | | | | Applicant: Maeda et al. | | | |
| | | | | Filing Date: Concurrently Herewith | | | |
| US Patent Documents | | | | | | | |
| Examiner's Initials | | Date | Document Number | Name | Class | Sub- Class | Filing Date |
| | | 07/28/98 | 5,785,234 | Weiss et al. | | | |
| Foreign Patent Documents | | | | | | | |
| Examiner's Initials | | Date | Document Number | Country | Class | Sub- Class | Translation |
| | | | | | | | |
| Other Documents (Including Author, Title, Date, Pertinent Pages, etc.) | | | | | | | |
| | | David Lammers, Flip Chip Packages Go Mainstream, Webpage[online].EE Times.com, 08/17/00. [Retrieved on October 6, 2000] Retrieved from the Internet:<URL: www.eetimes.com/story/OEG20000817S0024 Pgs. 1-5. | | | | | |
| | | Nasser Grayeli, Microprocessor Packaging: Evolution and Future Challenges, WebPage.[online]. Developer Intel, © 2000.[Retrieved on October 5, 2000] Retrieved from the internet:<URL: http:// developer.intel.com/technology/itj/q32000/foreword.htm.Pg. 1-2. | | | | | |
| | | SmartDie® product Manufacturing and Use, WebPage[online]. Developer.Intel.com, © 2000. [Retrieved on October 5, 2000.] Retrieved from the Internet:<URL:http://developer.intel.com/design/smartdie/COB.HTM. Pgs. 1-10. | | | | | |
| | | Valtronic News- Everything you wanted to know about the Flip Chip, WebPage [online]. March 1999 Issue. [Retrieved on October 6, 2000.] Retrieved from the internet:<URL:http://www.valtronic.ch/valtronicnews/0399issue/fc.html. Pgs. 1-5. | | | | | |
| | | Fluxes,WebPage [online]. [Retrieved on October 20,2000.] Retrieved from the Internet:<URL: www.intelligentdispensing.com/fluxes.htm. | | | | | |
| | | 7.0 Board Assembly Effects, WebPage [online]. [Retrieved on October 20, 2000]. Retrieved from the | | | | | |
| | | Composition and Graph diagram, WebPage [online]. [Retrieved on October 24, 2000.] Retrieved from the Internet:<URL: http://www.sv.vt.edu/classes/MSE2094_NoteBook/96ClassProj/pics/Pb_Sn.GIF.Pg. 1. | | | | | |
| Examiner | | | | Date Considered | | | |

Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw a line through the citation if not in conformance and not considered. Include a copy of this form with the next communication to the applicant

| | | | | | | |
|---|--|--|--|------------------------|---|-----------------------|
| US Department of Commerce Patent and Trademark Office Form PTO-1449 (Modified) | | | Atty. Docket No.: 42390P9978C | | Application No.: Not Yet Assigned | |
| | | | Applicant: Madea et al. | | | |
| | | | Filing Date: Concurrently Herewith | | | |
| US Patent Documents | | | | | | |
| Examiner's Initials | | Date | Document Number | Name | Class | Sub- Class |
| | | 12/24/91 | 5,074,920 | Gonsiorawski et al. | | |
| Foreign Patent Documents | | | | | | |
| Examiner's Initials | | Date | Document Number | Country | Class | Sub- Class |
| | | | | | | |
| Other Documents (Including Author, Title, Date, Pertinent Pages, etc.) | | | | | | |
| | | ORS Research Safety News, WebPage [online]. Northwestern University. Research Safety News Article- Lead-free Solder. Safer Solder Swap Suggestion: Lead-free Solder. Volume 16, Number 3. July, 2000. [Retrieved on 2000-10-24] Retrieved from the Internet:<URL:http://www.nwu.edu/research-safety/news/articles/2000articles/1603leadfree.htm Pg. 1. | | | | |
| | | Lead free solders - current trends, technology update.WebPage [online].Microtechnology & Reliability Centre, Newsletter 3.[retrieved on 2000-10-24] Retrieved from the Internet:<URL:www.twi.co.uk/news/micro-newslet3.html.Pg.1-4. | | | | |
| | | Approach to BGA Lead-Free, WebPage [online]. [Retrieved on 2000-10-24] Retrieved from the Internet:<URL:http://www.fujitsu.co.jp/hypertext/Products/Device/CATALOG/AD81/81-00004-2e-4.html Pgs. 1-4. | | | | |
| | | Manufacturing Test Industry Solutions - Lead Free Solder, Webpage [online]. Agilent Technologies, © 2000.[retrieved on 2000-10-24] Retrieved from the Internet:<URL:http://www.ate.agilent.com/emt/industry/leadfreesolder/index.shtml.pg. 1. | | | | |
| | | The Lead Free Interconnect Project: Statement of Work.WebPage [online]. [retrieved on 2000-10-24] Retrieved from the Internet:<URL: www.nemi.org/PbFreePUBLIC/Project/SOW.html.> Pgs. 1-6. | | | | |
| | | No-Clean Technology Review. WebPage [online]. Supercritical Carbon-dioxide Cleaning Technology Review, released in October 1996. [retrieved on 2000-10-26] Retrieved from the Internet:<URL:http://www.pprc.org/pprc/p2tech/noclean/nointro.html. Pgs. 1-4. | | | | |
| Examiner | | | | Date Considered | | |

Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw a line through the citation if not in conformance and not considered. Include a copy of this form with the next communication to the applicant

| | | | | | | | |
|---|--|--|--|----------------|---|-----------------------|--------------------|
| US Department of Commerce Patent and Trademark Office Form PTO-1449 (Modified) | | | Atty. Docket No.: 42390P9978C | | Application No.: Not Yet Assigned | | |
| | | | Applicant: Maeda et al. | | | | |
| | | | Filing Date: Concurrently Herewith | | | | |
| US Patent Documents | | | | | | | |
| Examiner's Initials | | Date | Document Number | Name | Class | Sub- Class | Filing Date |
| | | 05/09/00 | 6,059,894 | Pendse | | | |
| | | | | | | | |
| Foreign Patent Documents | | | | | | | |
| Examiner's Initials | | Date | Document Number | Country | Class | Sub- Class | Translation |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Other Documents (Including Author, Title, Date, Pertinent Pages, etc.) | | | | | | | |
| | | Mirng-Ji Lii, Bob Sankman, Hamid Azimi, Hwai Peg Yeoh & Yuejin Guo. "Flip-Chip Technology on Organic Pin Grid Array Packages" Intel Technology Journal Q3, 2000. Pgs. 1-9. | | | | | |
| | | Ravi Mahajan, Ken Brown & Vasu Atluri. "The Evolution of Microprocessor Packaging" . Intel Technology Journal Q3, 2000. Pgs. 1-10. | | | | | |
| | | Greig, W.J. "A Review of ThermoCompression Flip Chips Assembly", Electronic Packaging and Production, Pages 70-74, XP000776056. | | | | | |
| | | PCT Search Report, PCT/US02/08903, Mailed 6/26/03. | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Examiner | | | Date Considered | | | | |

Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw a line through the citation if not in conformance and not considered. Include a copy of this form with the next communication to the applicant